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Respiration.—In accordance with the theory that in aerobic respiration oxygen acts as a depolarizer,¹⁴ PACKARD finds¹⁵ that when carbohydrates which can be absorbed (e. g., maltose, glucose, fructose) are injected peritoneally into *Fundulus heteroclitus* the resistance to deprivation of oxygen is greatly increased; which the author explains on the assumption that the sugars act as depolarizers. He also concludes that the decrease in resistance to lack of oxygen shown by *Fundulus* embryos in successive stages of development is due to the using-up of material (probably carbohydrates) stored in the egg.

A paper has been published by HRUBY,¹⁶ which conforms in general to the more modern views as to the nature of respiration; and, though it adds nothing new, it will aid in the propagation of better ideas among European students.

KOSTYTSCHEW reports that *Aspergillus niger* fed with sugar produces little CO₂ under anaerobic conditions in a gaseous medium, but when submerged in a sugar solution it produces CO₂ and alcohol abundantly in the same ratio as in alcoholic fermentation.¹⁷

PALLADIN and KOSTYTSCHEW concluded that the anaerobic respiration of frozen lupines and stems had nothing to do with alcoholic fermentation.¹⁸ Now they add¹⁹ that alcohol formation (in consequence of anaerobic respiration of seed-plants) only occurs in the presence of carbohydrates; and when they are absent CO₂ is formed without alcohol. The chemics of this sort of anaerobic respiration they leave for further investigation.—C. R. B.

The algal flora of the tropics.—FRITSCH²⁰ has reached the following conclusions from a study of the subaerial and freshwater algae of the tropics. There is evidence that in the damp tropics there is always a very extensive subaerial algal covering, which probably consists almost entirely of Cyanophyceae, which may thus be regarded as an essentially tropical group. This group may be the descendants of primitive algal forms which existed at earlier periods under conditions analogous to those found in the damp tropics at the present day. Trentepohlia is the only genus of green algae that is really successful in the subaerial flora. In

¹⁴ BARNES, C. R., The theory of respiration. BOT. GAZETTE 39:96. 1905. MATHEWS, A. P., A theory of the nature of protoplasmic respiration and growth. Biol. Bull. 8:331. 1905.

¹⁵ PACKARD, W. H., The effect of carbohydrates on resistance to lack of oxygen. Am. Jour. Physiol. 18:164-180. 1907.

¹⁶ HRUBY, J., Die Atmung der Pflanzen. Beih. Bot. Centralbl. 21:156-172. figs. 3. 1907.

¹⁷ KOSTYTSCHEW, S., Ueber die Alkoholgärung von *Aspergillus niger*. Ber. Deutsch. Bot. Gesells. 25:44-50. 1907.

¹⁸ BOT. GAZETTE 42:397. 1906.

¹⁹ PALLADIN, W., and KOSTYTSCHEW, S., Ueber anaerobe Atmung der Samenpflanzen. Ber. Deutsch. Bot. Gesells. 25:51-56. 1907.

²⁰ FRITSCH, F. E., The subaerial and freshwater algal flora of the tropics; a phytogeographical and ecological study. Annals of Botany 21:235-275. 1907.